WHAT IS CLAIMED IS:

1. A method of identifying an intervention that mimics the effects of caloric restriction in cells, comprising:

obtaining a biological sample;

exposing said biological sample to an intervention;

waiting a specified period of time;

assessing changes in gene expression levels, levels of RNA, protein, or protein activity levels related to one or more biomarkers of aging; and

identifying said intervention as one that mimics the effects of caloric restriction if one or more changes in said levels also occurs in caloric restriction.

2. The method of claim 1, wherein said biological sample comprises cells.

3. The method of Claim 2, wherein said cells are obtained from a mammal.

4. The method of claim 3, wherein said mammal is a mouse.

5. The method of Claim 1, wherein said change in gene expression levels, levels of RNA, protein, or protein activity levels corresponds to a change in gene expression for a gene encoding a chaperone protein.

6. The method of Claim 5, wherein said gene encoding a chaperone protein is GRP78.

7. The method of Claim 1, wherein said biomarker is apoptosis.

8. The method of Claim 1, wherein said biomarker is aging.

9. The method of Claim 8, wherein said biomarker of aging is a production of cancer cells.

10. The method of Claim 1, wherein said changes in said gene expression level, levels of RNA, protein, or protein activity levels related to one or more biomarkers of aging occur in 6 weeks or less.

11. The method of Claim 10, wherein said changes in said gene expression levels, levels of RNA, protein, or protein activity levels related to one or more biomarkers of aging occur in four weeks or less.

12. The method of Claim 11, wherein said changes in said gene expression levels, levels of RNA, protein, or protein activity levels related to one or more biomarkers of aging occur in two weeks or less.

13. The method of Claim 12, wherein said changes in said gene expression levels, levels of RNA, protein, or protein activity levels related to one or more biomarkers of aging occur in about two days or less.

14. A method according to claim 1 wherein changes in gene expression are evaluated using a gene chip.

15. The method of Claim 14, wherein the gene chip contains genes for immune system activation.

16. The method of Claim 14, wherein the gene chip contains genes for DNA repair.

17. The method of Claim 14, wherein the gene chip contains genes associated with apoptosis.

18. The method of Claim 14, wherein the gene chip contains genes for the enteric nervous system.

19. The method of claim 1, wherein said biological sample is a test animal.

20. The method of Claim 19 additionally comprising determining changes in said levels in a reference animal having identifying characteristics of along term calorie-restricted animal wherein the reference animal has been on a calorie restricted diet for less than about 6 weeks and wherein said changes are used in said identifying said intervention as one that mimics the effects of calorie restriction.

21. The method of Claim 20, wherein the reference animal has been on a calorie restricted diet for less than about 4 weeks.

22. The method of Claim 24, wherein the reference animal has been on a calorie restricted diet for less than about 2 weeks.

23. The method of Claim 19, wherein said test animal is a mouse.

24. The method of Claim 19, wherein changes in gene expression are assessed in said test animal.

25. The method of claim 19 which further comprises:

obtaining a gene expression profile from a calorie restricted reference animal;

comparing changes in gene expression for the test animal to the gene expression profile of the calorie-restricted reference animal; and

identifying said intervention as one that mimics the effects of calorie restriction if the gene expression profile of the test animal is statistically similar to the gene expression profile of the calorie restricted animal.

26. The method of Claim 28, wherein the gene expression profile of the test animal is determined to be statistically similar to the gene expression of the calorie restricted animal by one way ANOVA followed by Fisher's test ($P<0.05$).

27. A system for identifying an intervention that mimics the effects of calorie restriction in a test animal comprising a test animal and a gene chip comprising genes known to have altered expression during calorie restriction.

28. The system of claim 27, wherein the gene chip comprises genes selected from the group consisting of genes for immune system activation, genes for DNA repair, genes associated with apoptosis and genes for the enteric nervous system.